

U++ - Bug #2035

Core: Fix build of uppsrc/Core/Cpu.cpp for Clang compilers before 3.8.0 version

05/21/2020 04:06 PM - Sender Ghost

Status:	Approved	Start date:	05/21/2020
Priority:	High	Due date:	
Assignee:	Sender Ghost	% Done:	0%
Category:	Core	Estimated time:	0.00 hour
Target version:		Spent time:	0.00 hour
Description			
There is following error when using Clang 3.4.1 compiler on FreeBSD 10.4 amd64 (for Intel Core 2 Quad CPU): <pre>In file included from <...>/upp/uppsrc/Core/Ops.h:347: /usr/include/clang/3.4.1/smmintrin.h:28:2: error: "SSE4.1 instruction set not enabled" #error "SSE4.1 instruction set not enabled"</pre> This is because of usage of <pre>#ifndef __SSE4_1__ #error "SSE4.1 instruction set not enabled"</pre> for smmintrin.h include before Clang 3.8.0 version: https://github.com/llvm/llvm-project/blob/llvmorg-3.4.1/clang/lib/Headers/smmintrin.h#L27-L28 https://github.com/llvm/llvm-project/blob/llvmorg-3.7.1/clang/lib/Headers/smmintrin.h#L27-L28 https://github.com/llvm/llvm-project/blob/llvmorg-3.8.0/clang/lib/Headers/smmintrin.h#L26 The same source code builds ok with using Clang 9.0.1 compiler. I propose to use emmintrin.h (SSE2) instead of smmintrin.h (SSE4.1) include and check for __SSE2__ define, because there is usage of SSE2 intrinsics in huge_memsetd and memsetd functions: https://software.intel.com/sites/landingpage/IntrinsicsGuide/#text=_mm_set1_epi32&#38;expand=4946 Some examples of how to use various *mmmintrin.h header files: uppsrc/plugin/Eigen/Eigen/src/Core/util/ConfigureVectorization.h: https://github.com/ultimatepp/ultimatepp/blob/f963516253431f6cb8a7145ee6f3f8a5f61dd567/uppsrc/plugin/Eigen/Eigen/src/Core/util/ConfigureVectorization.h#L336-L359 uppsrc/plugin/glm/simd/platform.h: https://github.com/ultimatepp/ultimatepp/blob/d10614cdcbacb498faae6685078a0fe463a5a4c9/uppsrc/plugin/glm/simd/platform.h#L32-L342			

History

#1 - 05/21/2020 04:07 PM - Sender Ghost

- Assignee set to Miroslav Fidler

#2 - 05/21/2020 04:16 PM - Sender Ghost

- Description updated

#3 - 05/21/2020 04:45 PM - Sender Ghost

- File uppsrc_Core_r14486_v2.diff added

Attached second variant of the patch to fix reference/Eigen_demo build, mentioned on the forum:

https://www.ultimatepp.org/forums/index.php?t=msg&th=11026&goto=54009#msg_54009

#4 - 05/21/2020 05:50 PM - Iñaki Zabala

Please consider in addition that in Core/Oops.h, line 395, "RGBA" should have to be "dword" in inline void memsetd(void *p, RGBA c, int len)

#5 - 05/22/2020 11:36 AM - Sender Ghost

- File *uppsrc_Core_r14490.diff* added

Looks like, the Eigen build issue with `<smmintrin.h>` include was because of its include inside of (Upp) namespace.

On the other hand, [possible](#) to use [<immintrin.h>](#) instead of `<smmintrin.h>` include, where `<emmintrin.h>` included conditionally, based on `__SSE2__` define.

Patch attached.

#6 - 05/22/2020 12:17 PM - Sender Ghost

- File *uppsrc_Core_r14491.diff* added

Patch updated after [14491](#) revision changes.

#7 - 05/22/2020 12:18 PM - Sender Ghost

- File *deleted (uppsrc_Core_r14490.diff)*

#8 - 05/22/2020 01:23 PM - Sender Ghost

Possible to close, because it was fixed in [14492](#) revision.

#9 - 05/22/2020 04:59 PM - Iñaki Zabala

Tested fix OK in W10 (MSVC2019, CLANG, MinGW) and GNU Linux Ubuntu (CLANG, GCC).

#10 - 05/22/2020 08:42 PM - Sender Ghost

- Status changed from Patch ready to Approved

- Assignee changed from Miroslav Fidler to Sender Ghost

Iñaki Zabala wrote:

| Tested fix OK in W10 (MSVC2019, CLANG, MinGW) and GNU Linux Ubuntu (CLANG, GCC).

Ok, thanks.

Files

uppsrc_Core_r14486.diff	839 Bytes	05/21/2020	Sender Ghost
uppsrc_Core_r14486_v2.diff	2.64 KB	05/21/2020	Sender Ghost
uppsrc_Core_r14491.diff	510 Bytes	05/22/2020	Sender Ghost